

Work Order ID 70678

Monday, June 13, 2011 1:11:24 PM



Page 1

Item ID: D6101-007

Accept



Setup Start



Revision ID:

Stop



Item Name: Saddle Billet

Start Date: 6/13/2011 Start Qty: 20.00



Cust Item ID:

Required Date: 6/17/2011 Req'd Qty: 20.00



Customer:

Reference:

Approvals:

Process Plan: CLDate: 11/06/13

Tooling:

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D6101

Rev B

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 14273

a) Description: Aluminum billet

b) 7.750" x 8.250" x 2.50" thick

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Grain direction along 7.750" length

e) Material: 7075-T7351 (QQ-A-250/12)

f) Material certification required

CL 11/06/13 (20)

110

0.00



Receive & Inspect for Damage & Mat'l Certs

Packaging

Memo

0.00

Packaging

Ensure material certification is attached

Rec'd 11/06/13 20

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 70678

Page 2

Monday, June 13, 2011 1:11:24 PM

Item ID: D6101-007

Accept



Setup Start



Revision ID:

Stop



Item Name: Saddle Billet

Start Date: 6/13/2011 Start Qty: 20.00



Cust Item ID:

Required Date: 6/17/2011 Req'd Qty: 20.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 QC Quality Control	QC6- Inspect dimensions to drawing Memo Ensure Material certification comply to Dwg D6101	0.00 0.00				20			
130 Packaging Packaging	Identify as per dwg & Stock Location: <u>COC</u> Memo	0.00 0.00				20			
140 QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							<u>u/c/14</u> <u>MP</u> <u>11-06-16</u>

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Monday, June 13, 2011 1:11:21 PM

Page 1

Work Order ID: 70678



Parent Item: D6101-007



Parent Item Name: Saddle Billet



Start Date: 6/13/2011

Required Date: 6/17/2011

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A: ☐01.05.04☐New Issue☐EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-007P  7075-T7351 8.25X7.75X2.5		Purchased	No			110	Each	0.0000	1 	20		PO 11/6/10 (20)	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

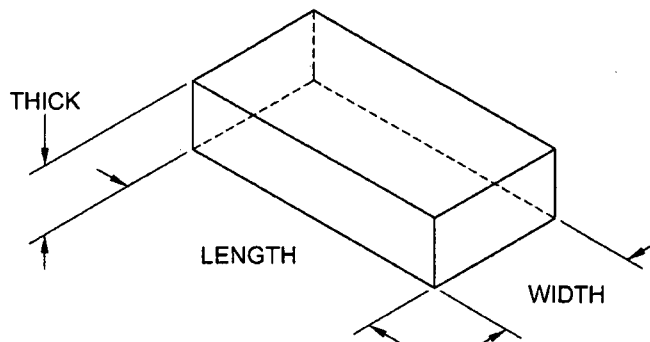
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

B

RELEASED
09/07/15/WJ

C&H/06/113

W10:70678

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	<small>COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO14273**

Purchase Order Date 6/13/2011

PO Print Date 6/13/2011

Page Number 2 of 3

Order From :

VC-MET001

METAUX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name		Buyer	Chantal Lavoie
Vendor Phone	514 694 9575	Requisition Nbr	
Vendor Fax	514 695 3281	Tax Resale Nbr	10127-2607
Vendor Account Nbr		Terms	Net 30
		Currency	CAD
		FOB	Destination-Collect

3	D6101-005P	7075-T7351 8.25X5.0X2.5	6/27/2011	10.00	Yours ppd	\$61.0000	\$610.00
			Yes	Each			

Special Inst: AS PER DWG D6101 REV. B
B70677
SIZE: 5.00" X 8.250" X 2.50" THICK
GRAIN DIRECTION ALONG 5.00"
LENGTH
MATERIAL: 7075-T7351 AS PER QQ-A-
250/12
TOLERANCE ON ALL DIMENSION ARE
+0.030"/-0.000'

4	D6101-007P	7075-T7351 8.25X7.75X2.5	6/15/2011	20.00	Yours ppd	\$79.2500	\$1,585.00
			Yes	Each			

Special Inst: AS PER DWG D6101 REV. B
B70678
SIZE: 7.750" X 8.250" X 2.50" THICK
GRAIN DIRECTION ALONG 7.750"
LENGTH
MATERIAL: 7075-T7351 AS PER QQ-A-
250/12
TOLERANCE ON ALL DIMENSION ARE
+0.030"/-0.000'

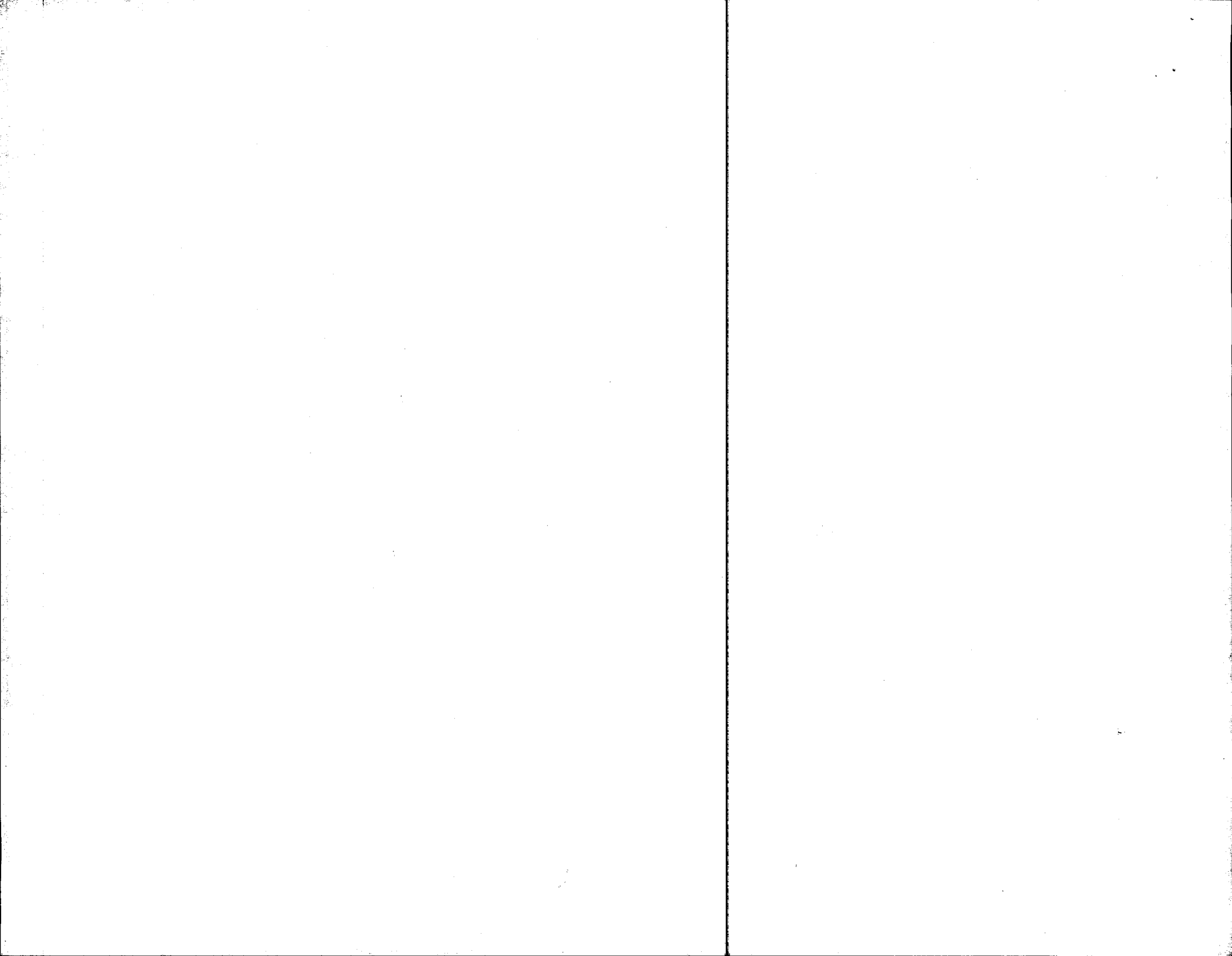
5	D6101-007P	7075-T7351 8.25X7.75X2.5	6/27/2011	30.00	Yours ppd	\$79.2500	\$2,377.50
			Yes	Each			

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 6/13/2011



**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 2

No de Formulaire d'Emballage / Shipment No: 851435

Expédié de / Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Vendu à / Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Expédié à / Ship To: WILL CALL-MONTREAL 1270 ABERDEEN POINTE CLAIRE, QC H9R 3S2 CA		Livré à / Deliver To: WILL CALL-MONTREAL 835 SELKIRK AVENUE POINTE CLAIRE, QC H9R 3S2 CA			
Date d'expédition / Date Shipped 14-JUN-2011		F.O.B. ORIGIN		Modalités de transport / Freight Terms Prepaid		Transporteur / Carrier MANITOULIN		N° du Bon de connaissance / BOL No 851435-2	

Détails d'expédition / Shipment Details		Destination finale / Final Destination Branch - MON	
--	--	--	--

N° de commande / Order No 1345815	N° de ligne / Line No 1	N° d'article / Item No 752241.MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.75")) X 7.75 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.75")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/12
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N° de bon de commande / Purchase Order No PER RELEASE	Nbre de pièces / Part Number YOUR ITEM NUMBER: D6101-007	Qté commandée / Ordered Qty 20 PCS	Qté Facturée / Invoice Qty 20 PCS
---	---	--	---

Détails / Details		DO NOT SHIP - HOLD UNTIL ADVISED					
N° de livraison / Delivery No : 74173310	Usine / Mill	No de coulée / Heat Number 485646A4	Code méc / Mech Id	Pièce s / PCS 20	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty(LBS) 330.63

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'état des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.
These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned.



Castle Metals®

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 2 of 2

for credit.			
Ce matériel a été reçu et inspecté par Reviewed by Authorized Castle Metals Representative:		Date:	

SHIP TO: CASTLE % CASTLE AEROSPACE 3050 SOUTH HYDRAULIC WICHITA, KS 67218		KAISER ALUMINUM Trentwood Works - Spokane, WA 99215 Phone: (800) 367-2586 CERTIFIED TEST REPORT	
SOLD TO: CAS AERO%AM CASTLE METALS ATTN: BOB OHR %ACCTS PAYABLES 3400 NORTH WOLF ROAD FRANKLIN PARK, IL 60131		Serial Number 4172642	
CUSTOMER PO NUMBER: 15132	WORK PACKAGE:	CUSTOMER PART NUMBER: 6879 AMC A97075-60	SHIP RUN/LOAD ID: 101636/5
KAISER ORDER NO: 1087324	LINE ITEM: 1	SHIP DATE: 29-SEP-2009	ALLOY: 7075
		CLAD: BARE	TEMPER: T7351
		PRODUCT DESCRIPTION: Sawed Plate	
WEIGHT SHIPPED: 44926 LB	QUANTITY: 25 PCS EST.	B/L NUMBER: 2024216	GAUGE: 2.5000 IN
		DIAMETER/WIDTH: 48.500 IN	LENGTH: 144.500 IN

Certified Specifications

AMS 4078/RevG
ASTM B 209/Rev07
BSS 7055/RevA
DPS 4.713/RevAH
GSS16100/RevG/Amcl

~~AMS-00-A-250/12~~
ASTM B 594/Rev06
CMMP 025/RevS
EAC MS1011/RevE
MMS 159/RevN

AMS-STD-2154
BAC 5439/RevH
CSTI 006/RevC
GAMPS 9101/RevB
PS 21211/RevK

Test Code: 4297

Test Results

Lot: 479610A8 Cast 268 Drop 21 Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile: Temper
T7351

Dir / # Tests

LT / 2 (Min:Max)

Ultimate KSI (MPA)

70.7 : 71.3

(487 : 492)

Yield KSI (MPA)

59.1 : 59.5

(407 : 410)

Elongation %

11.2 : 11.6

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :

41.6 Min

42.0 Max

(MS/M) :

24.1 Min

24.4 Max

(ASTM E1251)

Chemistry:

Actual

SI

0.09

FE

0.18

CU

1.6

MN

0.03

MG

2.4

CR

0.20

ZN

5.8

TI

0.04

V

0.01

ZR

0.01

TOT

0.05

OTHER

**KAISER
ALUMINUM**Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586**CERTIFIED TEST REPORT**Serial Number
4172642

Lot: 479709A8 Cast 268 Drop 10 Ingot 2

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.5 : 71.9 (493 : 496)	59.8 : 60.2 (412 : 415)	10.7 : 10.8

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.8 Min	41.3 Max
(MS/M) :	23.7 Min	24.0 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.20	1.5	0.04	2.4	0.20	5.6	0.03	0.01	0.01	TOT 0.05

Lot: 479742A9 Cast 271 Drop 09 Ingot 4

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	69.4 : 74.8 (479 : 516)	56.4 : 63.9 (389 : 441)	11.1 : 11.7

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	38.3 Min	40.9 Max
(MS/M) :	22.2 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.20	1.5	0.04	2.5	0.19	5.6	0.03	0.01	0.02	TOT 0.05

KAISER

ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number

4172642

Lot: 485604A3 Cast 271

Drop 23

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile: Temper
T7351Dir / # Tests
LT / 2 (Min:Max)Ultimate KSI (MPA)
71.8 : 72.0
(495 : 496)Yield KSI (MPA)
59.9 : 60.4
(413 : 416)Elongation %
10.6 : 10.9

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :
(MS/M) : 41.3 Min
24.0 Min41.3 Max
24.0 Max

(ASTM E1251)

Chemistry:

Actual

SI

FE

CU

MN

MG

CR

ZN

TI

V

ZR

TOT

OTHER

0.11

0.21

1.5

0.04

2.5

0.20

5.6

0.04

0.01

0.01

0.05

Lot: 485622A5 Cast 271

Drop 19

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile: Temper
T7351Dir / # Tests
LT / 2 (Min:Max)Ultimate KSI (MPA)
70.9 : 71.0
(489 : 490)Yield KSI (MPA)
59.1 : 59.5
(407 : 410)Elongation %
11.3 : 11.3

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :
(MS/M) : 40.6 Min
23.5 Min41.9 Max
24.3 Max

(ASTM E1251)

Chemistry:

Actual

SI

FE

CU

MN

MG

CR

ZN

TI

V

ZR

TOT

OTHER

0.10

0.21

1.5

0.04

2.4

0.19

5.5

0.04

0.01

0.01

0.05

KAISER

ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4172642

Lot: 485626A6 Cast 271

Drop 23

Ingot 3

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.2 : 71.8 (491 : 495)	59.4 : 60.1 (410 : 414)	10.1 : 11.0

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	41.3 Min	41.4 Max
(MS/M) :	24.0 Min	24.0 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.11	0.21	1.5	0.04	2.5	0.20	5.6	0.04	0.01	0.01	TOT 0.05

Lot: 485646A4 Cast 271

Drop 29

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.9 : 74.0 (489 : 510)	59.4 : 63.4 (410 : 437)	11.3 : 11.7

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	39.1 Min	41.6 Max
(MS/M) :	22.7 Min	24.1 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.4	0.04	2.4	0.20	5.7	0.03	0.01	0.01	TOT 0.05

ALLOY LIMITS

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075 MIN	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

**KAISER
ALUMINUM**Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586**CERTIFIED TEST REPORT**Serial Number
4172642**TEST NOTES**

7075-T7351 plate 3.501-4.000" thick, if
ultrasonically inspected, meets requirements of CMMPO25 per
SDR CMMPO25-KaiserT-3. 7075-T7351 plate 4.001-5.000" thick,
if ultrasonically inspected, meets requirements of CMMPO25
per
SDR CMMPO25-KaiserT-2.

Metal represented by this test report was immersion
ultrasonically tested from one side and meets the Class A
and Class B requirements of all specifications referenced
on this test report.

CERTIFICATION

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE UNITED STATES OF AMERICA OR A QUALIFYING COUNTRY PER DFARS 225.872-1(a), WAS MANUFACTURED IN THE UNITED STATES OF AMERICA, AND MEETS THE REQUIREMENTS OF DFARS 252.225 FOR DOMESTIC CONTENT. THIS MATERIAL HAS BEEN INSPECTED, TESTED, AND FOUND IN COMPLIANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT TREATED COMPLIES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF KAISER ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTIRE ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO-9001:2000 CERTIFIED.

BILL POYNOR, LABORATORIES SUPERVISOR